Space Weather Forecast

Issued on Saturday, 12 November 2022 at 00:54 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of further Moderate class flares (Minor to Moderate radio blackouts).
Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with two Moderate class flares from AR3141. There are two other numbered regions on the visible disc, both significantly smaller and weaker than AR3141.

No Earth-directed Coronal Mass Ejections (CMEs) have been observed on available imagery. A CME was observed lifting off of the western limb around 11/0830 UTC, modelling and analysis of available imagery projects a clear miss with no Earth-directed component expected.

Solar Wind / Geomagnetic Activity: The solar wind has increased from slow to slightly elevated. Total magnetic field strength, IMF, was initially weak, but increased through the period to Moderate. The important north-south component fluctuating moderately between positive and negative values. Geomagnetic activity was Quiet to Unsettled (Kp 0-3).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be generally Low, with a chance of further isolated Moderate flare activity. The most likely source of activity is from the largest and most complex sunspot region in the northern hemisphere.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are currently forecast. Solar winds are currently at slightly elevated levels, and are expected to return to slow-ambient levels over the next 24 hours as weak effects from a coronal hole wane. On day 4 (15 November) an increase to solar wind strength is possible due to the location of a further small coronal hole.
Geomagnetic activity is expected to be mainly Quiet to Unsettled. There is a slight chance of Active intervals on day 1 (12 November) and day 4 (14 November).

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background levels with only a slight, but increasing, chance of solar radiation storms.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	50	50	50	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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